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United States Department of Agriculture
AGRICULTURAL MARKETING ADMINISTRATION
SERVICE AND REGULATORY ANNOUNCEMENTS NO. 151

UNITED STATES STANDARDS FOR POTATOES

UNITED STATES DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, D. C.

By virtue of the authority vested in the Secretary of Agriculture by the provision in the act of Congress entitled "Department of Agriculture Appropriation Act for 1942" for the fiscal year ending June 30, 1942, and for other purposes, approved July 1, 1941 (Pub. 144—77th Congress), or any future act of Congress conferring like authority, for the demonstration and promotion of the use of uniform standards of classification of American farm products throughout the world, the following standards for potatoes are hereby promulgated and made effective on and after October 10, 1941,¹ unless amended or superseded by standards hereafter prescribed and promulgated under such authority. These standards supersede those promulgated April 30, 1940.

Done at Washington, D. C., this 10th day of September 1941. Witness my hand and the seal of the Department of Agriculture.

Grover B. Hill

Acting Secretary of Agriculture.

UNITED STATES STANDARDS FOR POTATOES

INTRODUCTION

Numbers and letters in parentheses following grade terms indicate where such terms are defined under Definitions of Terms.

All percentages shall be calculated on the basis of weight.

The tolerances for the standards are on a container basis. However, if the averages for the entire lot, based on sample inspection, are within the tolerances specified in the standards, the contents of individual packages in the lot may vary from the specified tolerances subject to the following limitations:

When the tolerance specified is 10 percent or more, not over one-tenth of the individual packages in the lot may contain more than one and one-half times the tolerance except that at least one defective specimen shall be permitted in a package.

When the tolerance specified is less than 10 percent, not over one-tenth of the individual packages in any lot may contain more than double the tolerance specified, but no package may contain more than four times the tolerance for soft rot or wet breakdown except that at least one defective specimen shall be permitted in a package.

GRADES

U. S. Fancy shall consist of potatoes of one variety or similar varietal characteristics which are firm, mature (1), bright (2), well shaped (3), free from freezing injury, blackheart, blight, shriveling, sprouting, wireworm injury,

¹ By order of the Acting Secretary of Agriculture, dated October 2, 1941, the effective date of these standards was changed to June 1, 1942.

soft rot or wet breakdown (4), hollow heart, and internal discoloration (5), and free from injury (6) caused by dirt or other foreign matter, sunburn, second growth, growth cracks, air cracks, cuts, scab, dry rot, rhizoctonia, other disease, other insects or mechanical or other means (6).

The diameter (7) of each potato shall be not less than 2 inches.

For long varieties such as Burbank, Russet Burbank, Early Ohio, Pride of Wisconsin, or other similar varieties, not less than 40 percent of the potatoes in any lot shall be 6 ounces or more in weight.

For round or intermediate shaped varieties such as Irish Cobbler, Bliss Triumph, Green Mountain, or other similar varieties, not less than 60 percent of the potatoes in any lot shall be $2\frac{1}{4}$ inches or larger in diameter.

The size of the potatoes may be stated in terms of minimum diameter or minimum weight, or of range in diameter or weight, or of a certain percentage over a certain size, following the grade name, but in no case shall the potatoes be below the sizes specified for this grade. (See Tolerance for Size, p. 3.)

Tolerance for defects.—In order to allow for variations other than size incident to proper grading and handling, not more than 6 percent of the potatoes in any container may be below the requirements of the grade but not to exceed one-sixth of this amount, or 1 percent, shall be allowed for potatoes affected by soft rot or wet breakdown.

U. S. Extra No. 1 shall consist of potatoes of one variety or similar varietal characteristics which are fairly well shaped (8), fairly clean (9), free from freezing injury, blackheart, blight, and soft rot or wet breakdown (4) and from damage (10) caused by sunburn, second growth (10a), growth cracks (10a), air cracks (10b), hollow heart, internal discoloration (5 and 10), cuts, shriveling (10c), sprouting (10d), scab (10e and f), dry rot, rhizoctonia (10g), other disease (10), wireworm (10h), other insects or mechanical or other means (10).

Unless otherwise specified, size of potatoes (See Size Classification, p. 3, and Tolerance for Size, p. 3) shall be as follows:

The diameter (7) of each potato shall be not less than $1\frac{7}{8}$ inches.

For long varieties such as Burbank, Russet Burbank, Early Ohio, Pride of Wisconsin, or other similar varieties, not less than 60 percent of the potatoes in the lot shall be 6 ounces or larger, of which not less than one-half, or 30 percent, shall be 10 ounces or more in weight.

For round or intermediate shaped varieties, such as Irish Cobbler, Bliss Triumph, Green Mountain or other similar varieties, not less than 60 percent of potatoes in the lot shall be $2\frac{1}{4}$ inches or larger, of which not less than one-half, or 30 percent, shall be $2\frac{3}{4}$ inches or larger in diameter.

Tolerance for defects.—In order to allow for variations other than size incident to proper grading and handling, not more than 6 percent of the potatoes in any container may be below the requirements of the grade, but not to exceed one-sixth of this amount, or 1 percent, shall be allowed for potatoes affected by soft rot or wet breakdown. In addition, not more than 5 percent may be damaged by hollow heart, and internal discoloration.

U. S. No. 1 shall consist of potatoes of one variety or similar varietal characteristics which are fairly well shaped (8), free from freezing injury, blackheart, blight, and soft rot or wet breakdown (4), and from damage (10) caused by dirt (10i) or other foreign matter (10i), sunburn, second growth (10a), growth cracks (10a), air cracks (10b), hollow heart, internal discoloration (5 and 10), cuts, shriveling (10c), sprouting (10d), scab 10e and f), dry rot, rhizoctonia (10g), other disease (10), wireworm (10h), other insects or mechanical or other means (10).

Unless otherwise specified the diameter (7) of each potato shall be not less than $1\frac{7}{8}$ inches. (See Size Classification, p. 3, and Tolerance for Size, p. 3.)

Tolerance for defects.—In order to allow for variations other than size incident to proper grading and handling, not more than 6 percent of the potatoes in any container may be below the requirements of the grade but not to exceed one-sixth of this amount, or 1 percent, shall be allowed for potatoes affected by soft rot or wet breakdown. In addition, not more than 5 percent may be damaged by hollow heart and internal discoloration.

U. S. Commercial shall consist of potatoes which meet the requirements of U. S. No. 1 grade except that they shall be free from serious damage by dirt (11a) and except for the increased tolerance for defects specified below.

Unless otherwise specified, the diameter (7) of each potato shall be not less than $1\frac{7}{8}$ inches. (See Size Classification, p. 3, and Tolerance for Size, p. 3.)

Tolerance for defects.—In order to allow for variations other than size and sprouting incident to proper grading and handling, not more than a total of 20

percent of the potatoes in any container may be below the requirements of this grade, but not more than 5 percent may be seriously damaged by hollow heart and internal discoloration and not over 6 percent may be below the remaining requirements of U. S. No. 2 grade, provided that not more than one-sixth of this amount, or 1 percent, shall be allowed for potatoes affected by soft rot or wet breakdown. In addition, not more than 10 percent of the potatoes may have sprouts over $\frac{3}{4}$ -inch long but which are not seriously damaged by shriveling, provided, that if all of the 20 percent tolerance is not used for other defects, the unused part of the tolerance may also be used for potatoes having sprouts over $\frac{3}{4}$ -inch long but which are not seriously damaged by shriveling.

U. S. No. 2 shall consist of potatoes of one variety or similar varietal characteristics which are free from freezing injury, blackheart, and soft rot or wet breakdown (4) and from serious damage (11) caused by dirt (11a) or other foreign matter, sunburn, second growth, growth cracks, air cracks, hollow heart, internal discoloration (5 and 11), cuts (11b), shriveling (11c), scab (11d and e), blight, dry rot, other disease, wireworm (11f), other insects, or mechanical or other means (11).

Unless otherwise specified the diameter (7) of each potato shall be not less than $1\frac{1}{2}$ inches. (See Size Classification, p. 3, and Tolerance for Size, p. 3.)

Tolerance for defects.—In order to allow for variations other than size incident to proper grading and handling, not more than 6 percent of the potatoes in any container may be below the requirements of the grade, but not to exceed one-sixth of this amount, or 1 percent, shall be allowed for potatoes affected by soft rot or wet breakdown. In addition, not more than 5 percent may be seriously damaged by hollow heart and internal discoloration.

Unclassified shall consist of potatoes which have not been classified in accordance with any of the foregoing grades. The term "unclassified" is not a grade within the meaning of these standards but is provided as a designation to show that no definite grade has been applied to the lot.

SIZE CLASSIFICATION FOR ALL GRADES EXCEPT U. S. FANCY

When the potatoes are designated as "U. S. No. 1," "U. S. Commercial," or "U. S. No. 2" without specifying a size classification, it is understood that the potatoes meet the minimum size specified in the grade but that no definite percentage of the potatoes is required to be larger than this minimum size.

When potatoes meet the requirements of either size A or size B as described below, the size classification may be specified in connection with any of the U. S. grades except Fancy, as: "U. S. No. 1, Size A"; "U. S. Extra No. 1, Size A"; "U. S. Commercial, Size B"; "U. S. No. 1, Size B"; "U. S. No. 2, Size A"; or "U. S. No. 2, Size B"; in accordance with the facts. When Size A or Size B is used in connection with the grade, it is not permissible to specify any smaller sizes than those specified under these designations.

Size A.—For long varieties such as Burbank, Russet Burbank, Early Ohio, Pride of Wisconsin, or other similar varieties, the diameter of each potato shall be not less than $1\frac{7}{8}$ inches and not less than 40 percent of the potatoes in the lot shall be 6 ounces or more in weight.

For round or intermediate shaped varieties such as Irish Cobbler, Bliss Triumph, Green Mountain, or other similar varieties, the diameter of each potato shall be not less than $1\frac{7}{8}$ inches and not less than 60 percent of the potatoes in the lot shall be $2\frac{1}{4}$ inches or larger in diameter.

Size B.—For all varieties the size shall be from $1\frac{1}{2}$ inches to not more than 2 inches in diameter.

Other sizes.—When either of the above size designations is not used in connection with U. S. Extra No. 1, U. S. No. 1, U. S. Commercial, or U. S. No. 2 grades, it is permissible to specify any other minimum size such as " $1\frac{1}{2}$ inches minimum," "2 inches minimum"; or both a minimum and a maximum size as " $1\frac{7}{8}$ inches to 3 inches," "6 to 10 ounces"; or to specify a certain percentage over a certain size as "25 percent or more $2\frac{1}{4}$ inches and larger," "50 percent or more 6 ounces and larger."

Tolerance for size.—In order to allow for variations incident to proper sizing, not more than 3 percent of the potatoes in any container may be below the specified minimum size except that a tolerance of 5 percent shall be allowed for potatoes packed to meet a minimum size of $2\frac{1}{4}$ inches or more in diameter, or 6 ounces or larger in weight. In addition, not more than 15 percent may be above any specified maximum size.

When a percentage of the potatoes is specified to be of a certain size and larger, no part of any tolerance shall be used to reduce such a percentage for the lot as a whole, but individual containers may have not more than 15 percent less than the percentage required or specified provided that the entire lot averages within the percentage specified. For example, a lot specified as 25 percent 2½ inches and larger may have containers with not less than 10 percent 2½ inches and larger provided the lot as a whole averages 25 percent 2½ inches and larger.

DEFINITIONS OF TERMS

As used in these standards:

(1) "Mature" means that the outer skin (epidermis) does not loosen or "feather" readily during the ordinary methods of handling.

(2) "Bright" means practically free from dirt or other foreign matter, and that the outer skin (epidermis) has the attractive color normal of the variety.

(3) "Well shaped" means the normal shape for the variety and that the potato is not pointed, dumbbell-shaped, excessively elongated, or otherwise ill-formed.

(4) "Soft rot or wet breakdown" means any soft, mushy, or leaky condition of the tissue such as slimy soft rot, leak, or wet breakdown following freezing injury or sunscald.

(5) "Internal discoloration" means discoloration such as is caused by net necrosis or any other type of necrosis, stem-end browning, internal brown spot, or other similar types of discoloration not visible externally, except blackheart.

(6) "Injury" means any defect which more than slightly affects the shipping quality or the appearance of the individual potato or the general appearance of the potatoes in the container, or which cannot be removed without a loss of more than 2 percent of the total weight of the potato including peel covering defective area.

(7) "Diameter" means the greatest dimension at right angles to the longitudinal axis. The long axis shall be used without regard to the position of the stem (rhizome).

(8) "Fairly well shaped" means that the appearance of the individual potato or the general appearance of the potatoes in the container is not materially injured by pointed, dumbbell-shaped or otherwise ill-formed potatoes.

(9) "Fairly clean" means that from the viewpoint of general appearance the potatoes in the container are reasonably free from dirt or other foreign matter and that individual potatoes are not materially caked with dirt or materially stained.

(10) "Damage" means any injury or defect which materially injures the shipping quality or the appearance of the individual potato or the general appearance of the potatoes in the container, or which cannot be removed without a loss of more than 5 percent of the total weight of the potato including peel covering defective area. Loss of outer skin (epidermis) shall not be considered as damage unless the skinned surface is materially affected by very dark discoloration. Any one of the following defects or any combination of defects the seriousness of which exceeds the maximum allowed for any one defect shall be considered as damage:

(a) Second growth or growth cracks which have developed to such an extent as to materially injure the appearance of the individual potato or the general appearance of the potatoes in the container.

(b) Air cracks which are deep, or shallow air cracks which materially injure the appearance of the individual potato or the general appearance of the potatoes in the container.

(c) Shriveling when the potato is more than moderately shriveled, spongy, or flabby.

(d) Sprouting when more than 10 percent of the potatoes have sprouts over three-fourths of an inch long.

(e) Surface scab which covers an area of more than 5 percent of the surface of the potato in the aggregate.

(f) Pitted scab which affects the appearance of the potato to a greater extent than the amount of surface scab permitted or causes a loss of more than 5 percent of the total weight of the potato including peel covering defective area.

(g) Rhizoctonia when the general appearance of the potatoes in the container is materially injured or when individual potatoes are badly infected.

(h) Wireworm, grass root or similar injury when any hole, on potatoes ranging in size from 6 to 8 ounces, is longer than ¾-inch or when the aggregate length of all holes is more than 1¼ inches. Smaller potatoes shall have lesser amounts

and larger potatoes may have greater amounts, provided that the removal of the injury by proper trimming does not cause the appearance of such potatoes to be injured to a greater extent than that caused by the proper trimming of such injury permitted on a 6 to 8 ounce potato.

(i) Dirt when the general appearance of the potatoes in the container is more than slightly dirty or stained, or when individual potatoes are badly caked with dirt or badly stained; or other foreign matter which materially affects the appearance of the potatoes.

(11) "Serious damage" means any injury or defect which seriously injures the appearance of the individual potato or the general appearance of the potatoes in the container, or which cannot be removed without a loss of more than 10 percent of the total weight of the potato including peel covering defective area. Any one of the following defects or any combination of defects the seriousness of which exceeds the maximum allowed for any one defect shall be considered as serious damage:

(a) Dirt when the general appearance of the potatoes in the container is seriously affected by tubers badly caked with dirt; or other foreign matter which seriously affects the appearance of the potatoes.

(b) Fairly smooth cuts such as are made by the digger or by a knife to remove injury when both ends are clipped, or when more than an estimated one-fourth of the potato is cut away, or, in the case of long varieties, when the remaining portion of the clipped potato weighs less than 6 ounces.

Irregular types of cuts which seriously affect the appearance of the individual potato, or which cannot be removed without a loss of more than 10 percent of the total weight of the potato including peel covering defective area.

(c) Shriveling when the potato is excessively shriveled, spongy, or flabby.

(d) Surface scab which covers an area of more than 50 percent of the surface of the potato in the aggregate.

(e) Pitted scab which affects the appearance of the potato to a greater extent than the amount of surface scab permitted or causes a loss of more than 10 percent of the total weight of the potato including peel covering defective area.

(f) Wireworm, grass root or similar injury when any hole, on potatoes ranging in size from 6 to 8 ounces, is longer than $1\frac{1}{4}$ inches or when the aggregate length of all holes is more than 2 inches. Smaller potatoes shall have lesser amounts and larger potatoes may have greater amounts, provided that the removal of the injury by proper trimming, does not cause the appearance of such potatoes to be injured to a greater extent than that caused by the proper trimming of such injury permitted on a 6 to 8 ounce potato.

